

AD-A216 657

FILE COPY

①

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE December 1989		3. REPORT TYPE AND DATES COVERED presentation/paper	
4. TITLE AND SUBTITLE MARINE MAMMAL HEALTH MANAGEMENT BASED ON IMMUNE SYSTEM RESPONSE TO STRESS AND INFECTIOUS DISEASE				5. FUNDING NUMBERS In-house	
6. AUTHOR(S) J. P. Schroeder				8. PERFORMING ORGANIZATION REPORT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Ocean Systems Center San Diego, CA 92152-5000				10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Naval Ocean Systems Center San Diego, CA 92152-5000				11. SUPPLEMENTARY NOTES	
12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.				12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) <p>Knowledge of the interrelationship of stress, immunology and infectious disease is basic to management of preventive medicine programs. Diagnostic and prognostic indicators of the dynamics of this interrelationship are not as well defined in marine mammals as they are in terrestrial animals.</p> <p>Our objectives were to correlate a newly developed immune system indicator, radioimmunoassay of immunoglobulins, with some indicators of stress: erythrocyte sedimentation rate, serum cortisol levels, eosinophil numbers, free iron in serum, blood gasses and more traditional complete blood counts, to determine some effects of stressors on the immune system of five newly collected <i>Tursiops truncatus gilli</i>. This data was analyzed and related to the dolphins' responses to changes in bacteria cultured from their blow holes.</p> <p>Analysis of periodic blood samples indicated increased sedimentation rates within one week and decreasing sperm iron correlated with the change in bacterial flora from <i>Vibrio alginolyticus</i>, (normal in dolphins in Hawaii), to coagulase positive, Beta hemolytic, penicillin resistant <i>Staphylococcus aureus</i>. Several other parameters were measured and correlated with the progression of disease processes, from the collection data through adjustments to captivity.</p> <p>Application of new technology in stress assessment, epidemiology and immunology of marine mammals was important in health management decisions for these newly captured dolphins. Reports - (C) 1987</p> <p>Published in <i>Proceedings First International Conference on Zoological and Avian Medicine</i>, September 1987.</p>					
14. SUBJECT TERMS mammals health				15. NUMBER OF PAGES	
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED				18. PRICE CODE	
18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED		19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED		20. LIMITATION OF ABSTRACT UNLIMITED	

**PROCEEDINGS
FIRST INTERNATIONAL CONFERENCE
on
ZOOLOGICAL AND AVIAN MEDICINE**

**Sponsored by
Association of Avian Veterinarians
and
American Association of Zoo Veterinarians**

September 6-11, 1987

**Turtle Bay Hilton and Country Club
Oahu, Hawaii**

Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By <u>NOSC</u>	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
<u>A-1</u>	<u>21</u>



MARINE MAMMAL HEALTH MANAGEMENT BASED ON IMMUNE SYSTEM RESPONSE
TO STRESS AND INFECTIOUS DISEASE

J. P. Schroeder, DVM
Naval Ocean Systems Center, Hawaii Laboratory, Kailua, HI

Knowledge of the interrelationship of stress, immunology and infectious disease is basic to management of preventive medicine programs. Diagnostic and prognostic indicators of the dynamics of this interrelationship are not as well defined in marine mammals as they are in terrestrial animals.

Our objectives were to correlate a newly developed immune system indicator, radioimmunoassay of immunoglobulins, with some indicators of stress: erythrocyte sedimentation rate, serum cortisol levels, eosinophil numbers, free iron in serum, blood gasses and more traditional complete blood counts, to determine some effects of stressors on the immune system of five newly collected Tursiops truncatus gilli. This data was analyzed and related to the dolphins responses to changes in bacteria cultured from their blow holes.

Analysis of periodic blood samples indicated increased sedimentation rates within one week and decreasing serum iron correlated with the change in bacterial flora from Vibrio alginolyticus, (normal in dolphins in Hawaii), to coagulase positive, Beta hemolytic, penicillin resistant Staphylococcus aureus. Several other parameters were measured and correlated with the progression of disease processes, from the collection date through adjustments to captivity.

Application of new technology in stress assessment, epidemiology and immunology of marine mammals was important in health management decisions for these newly captured dolphins.